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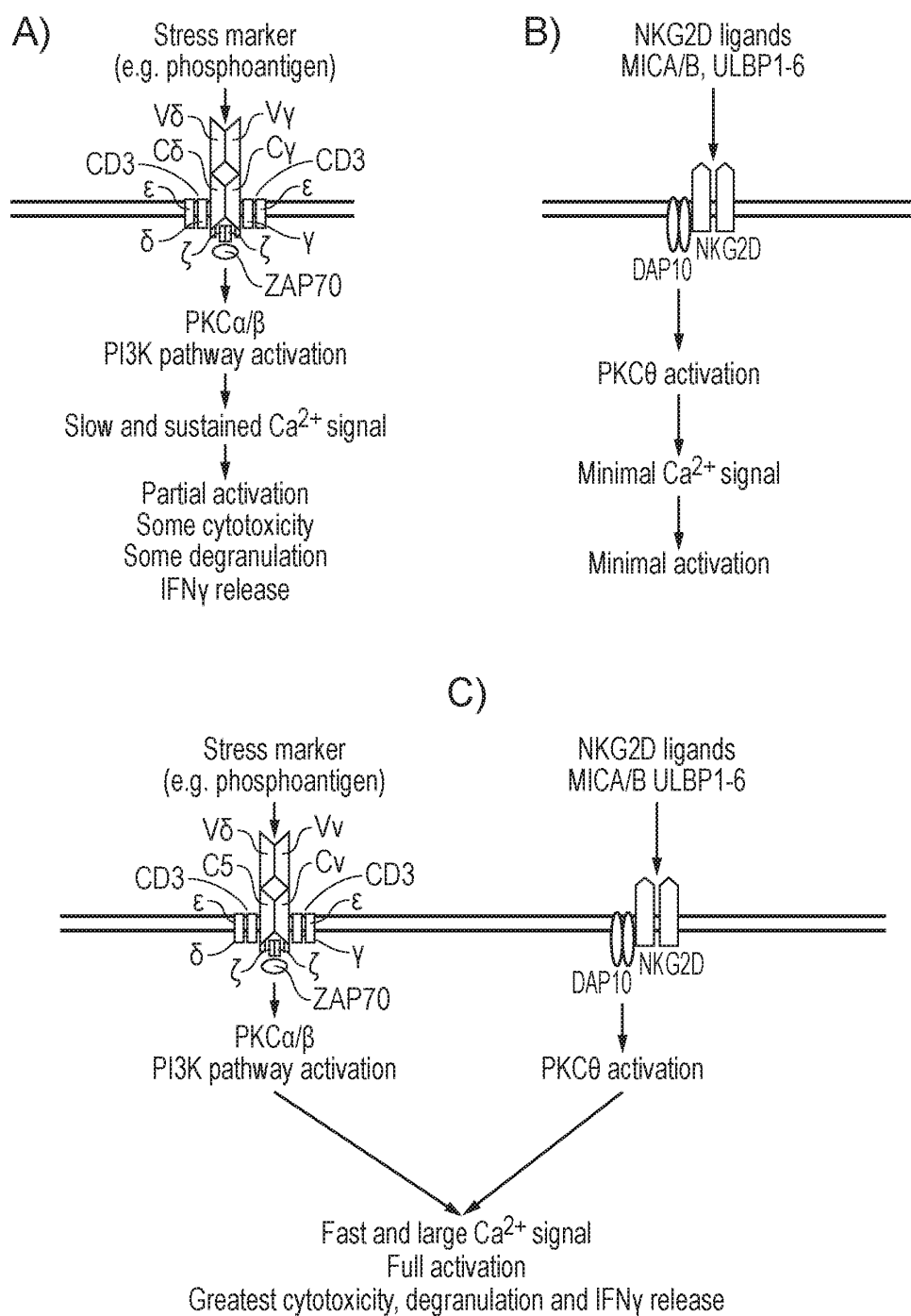


FIG. 1

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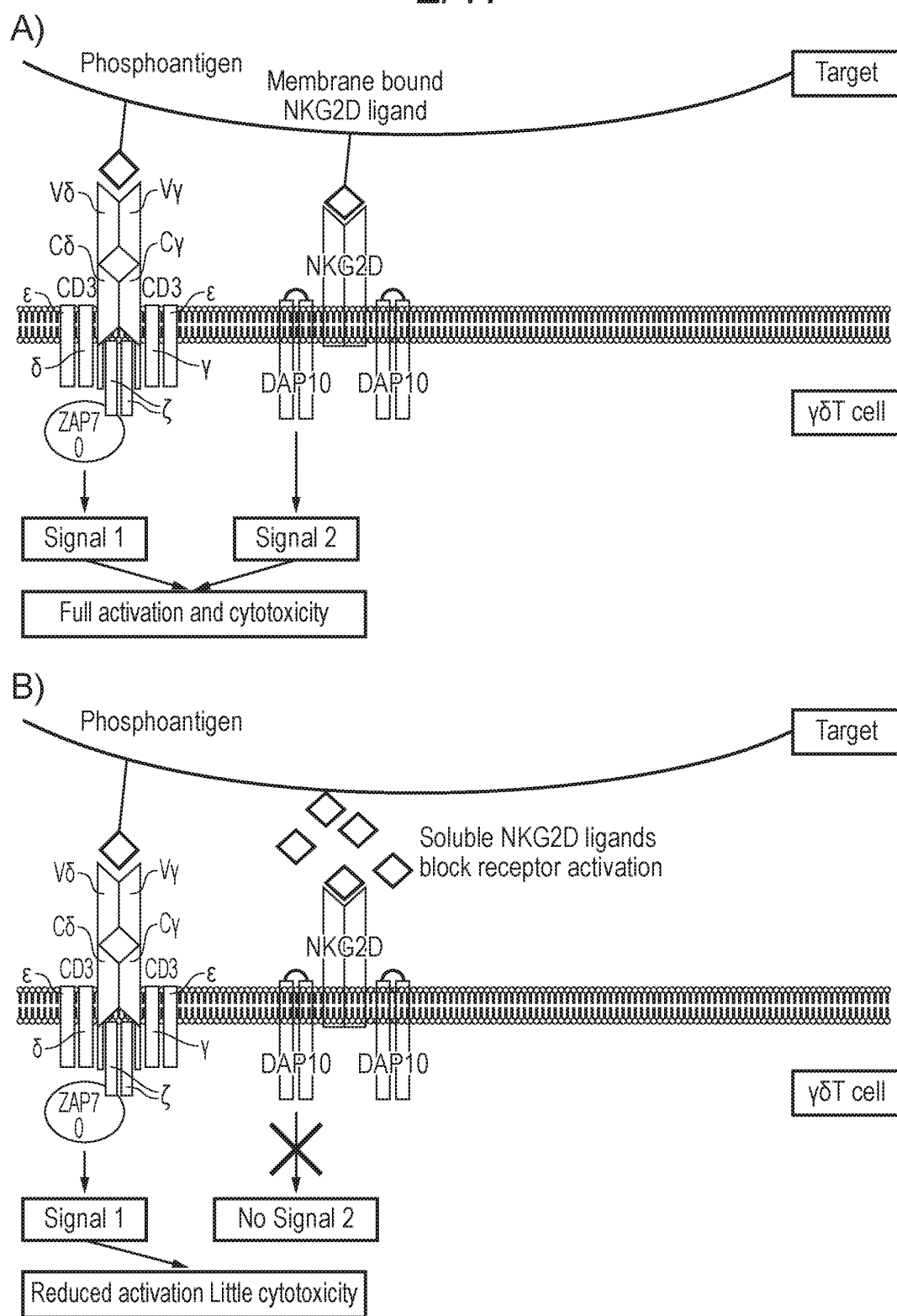


FIG. 2

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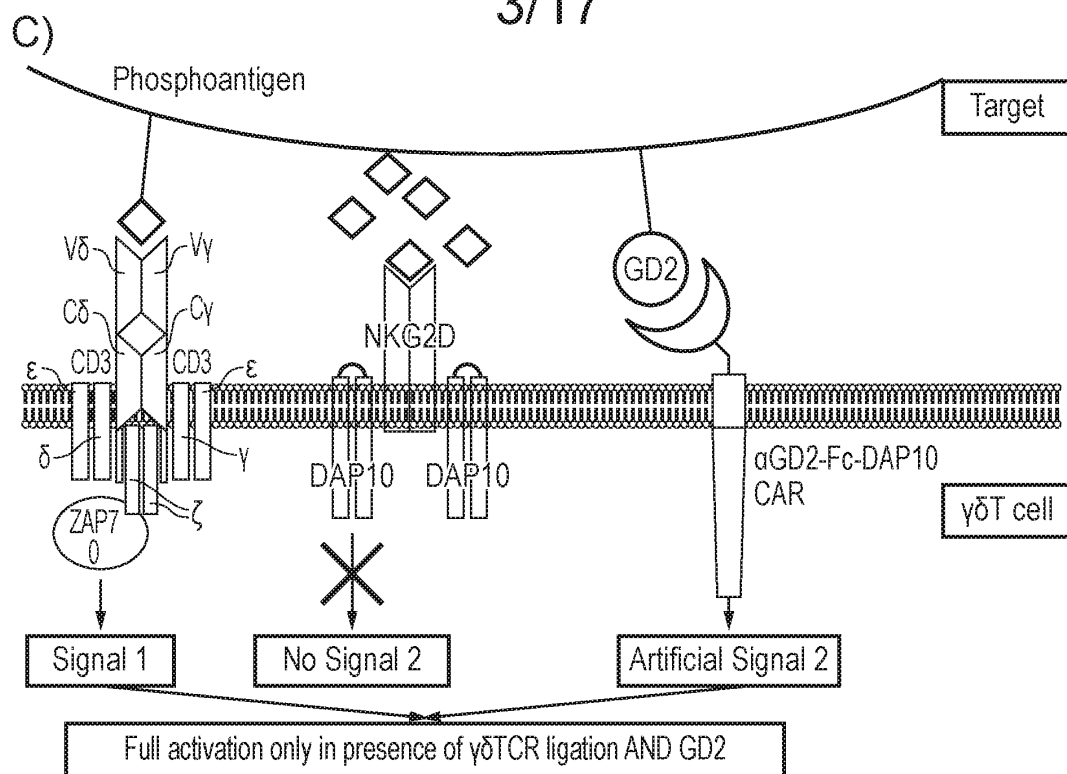
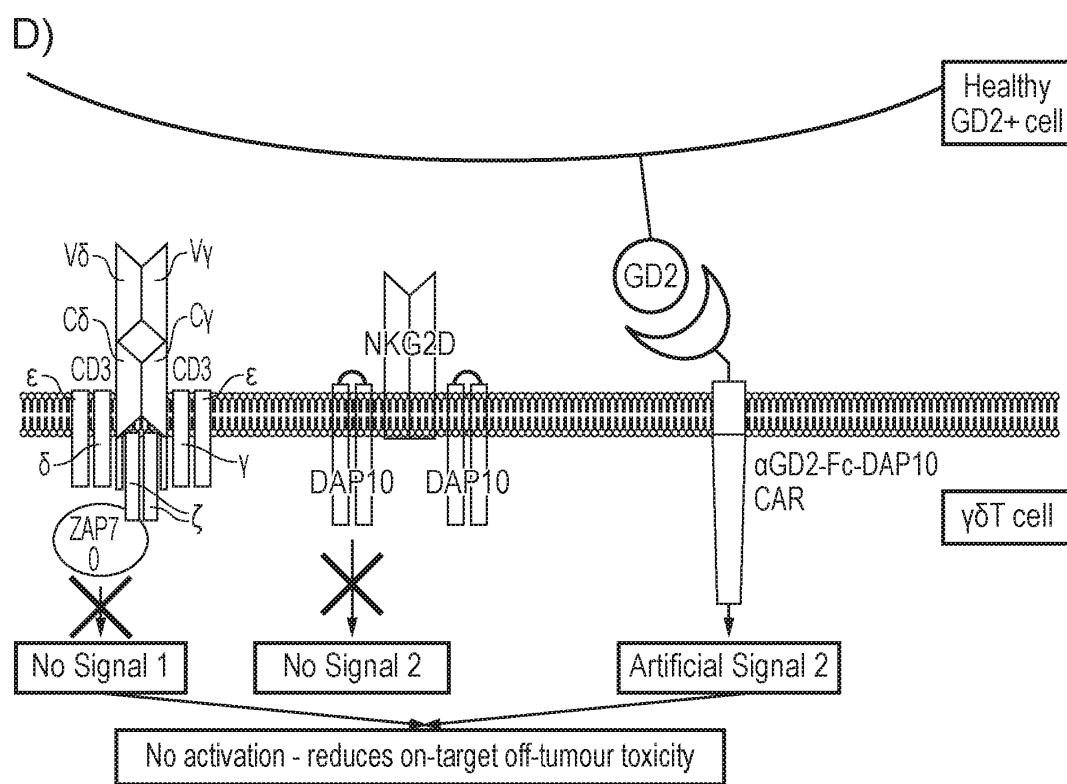


FIG. 2 (Continued)

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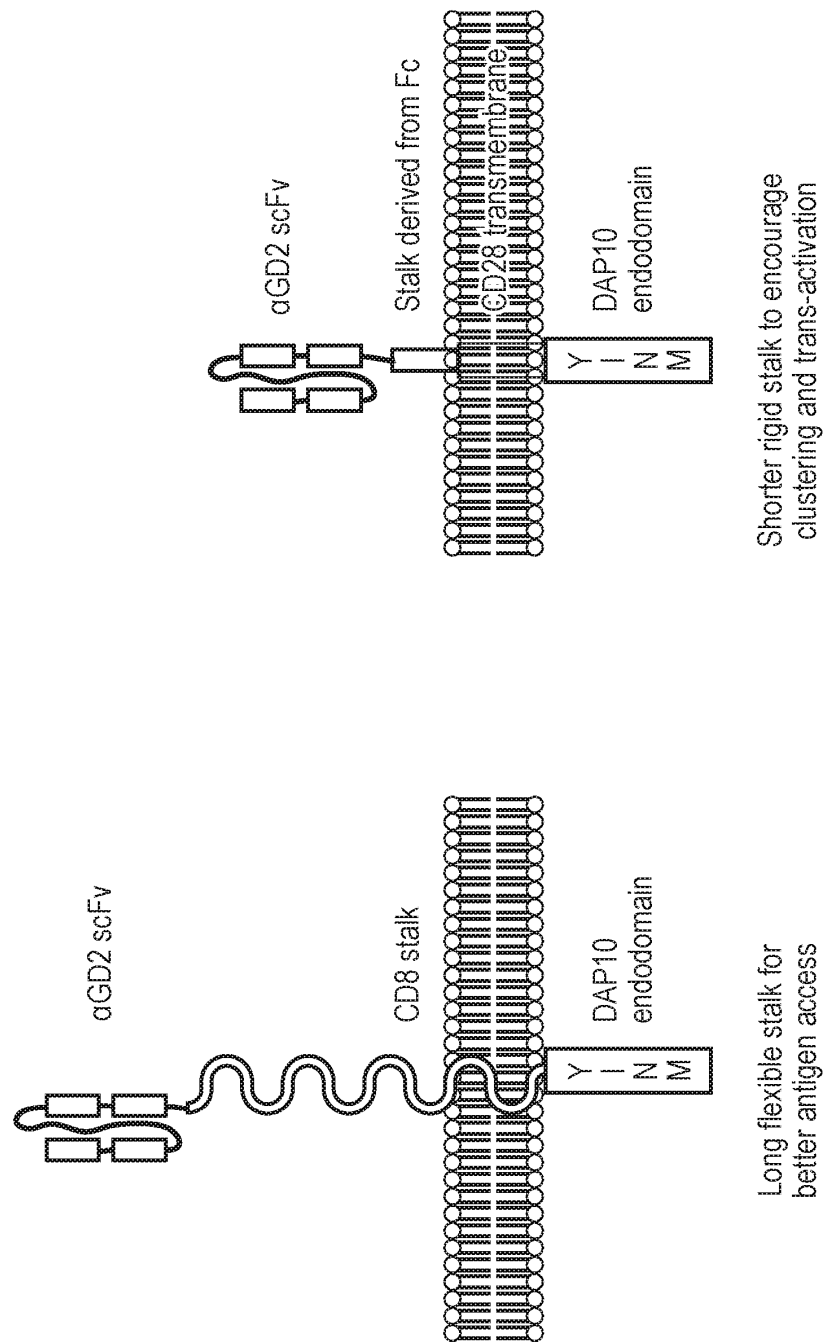
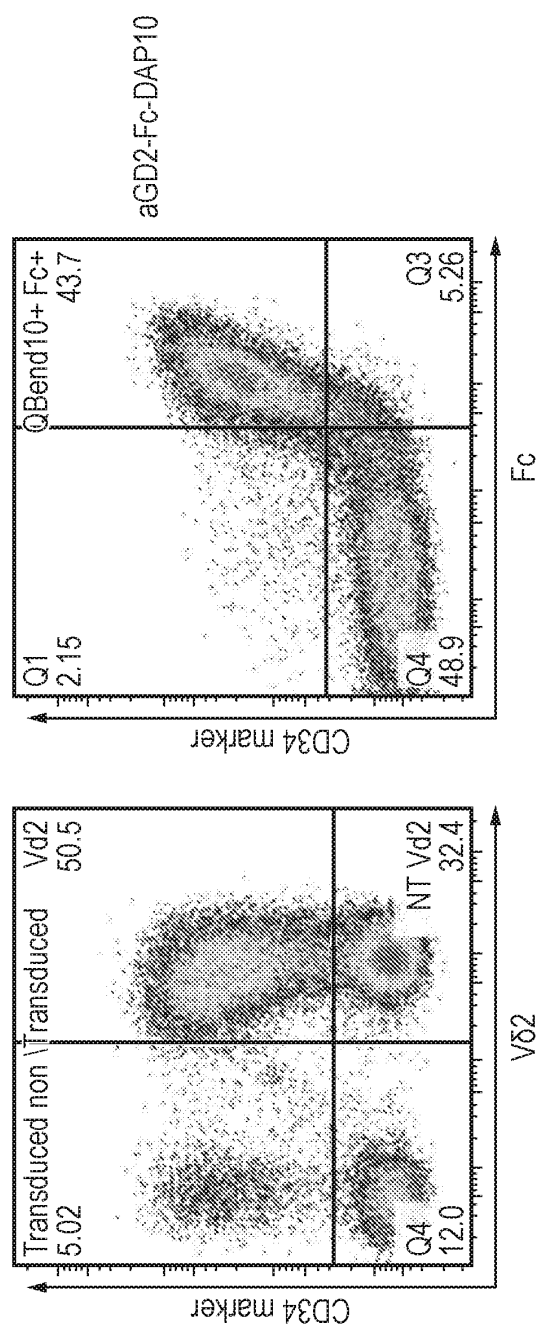


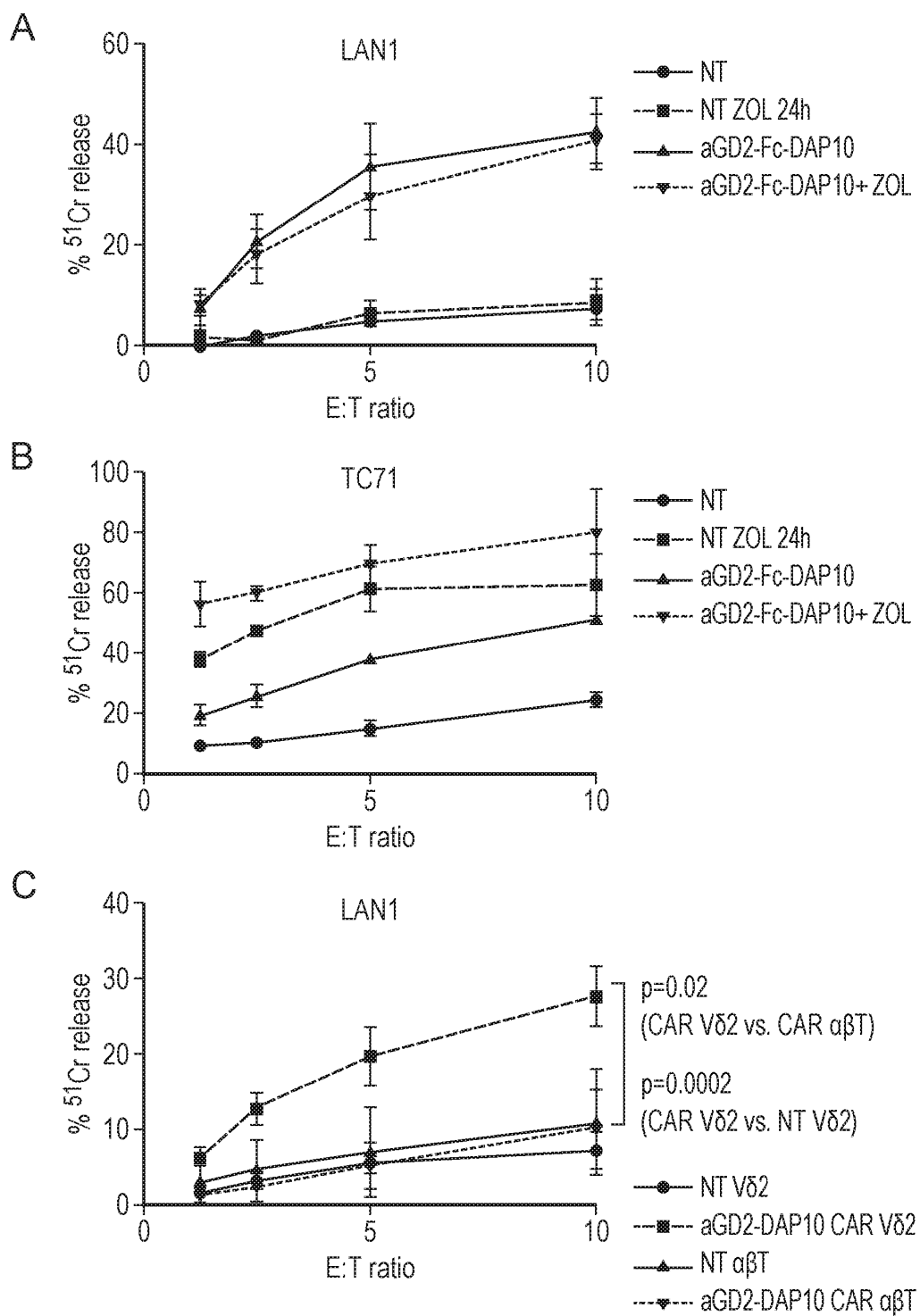
FIG. 3

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4
G
L

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Error bars denote SEM for n=3-6 independent donors

FIG. 5

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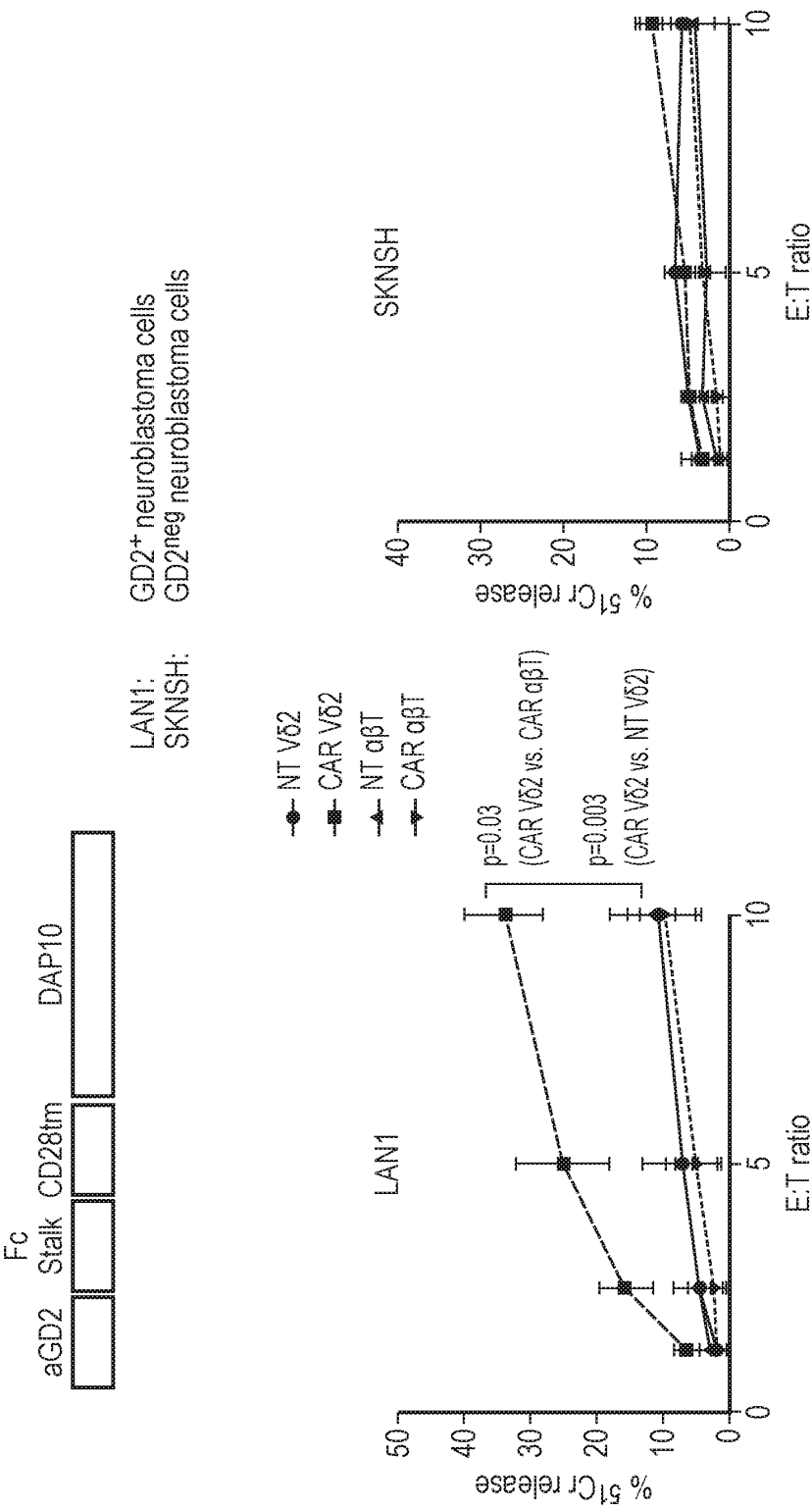
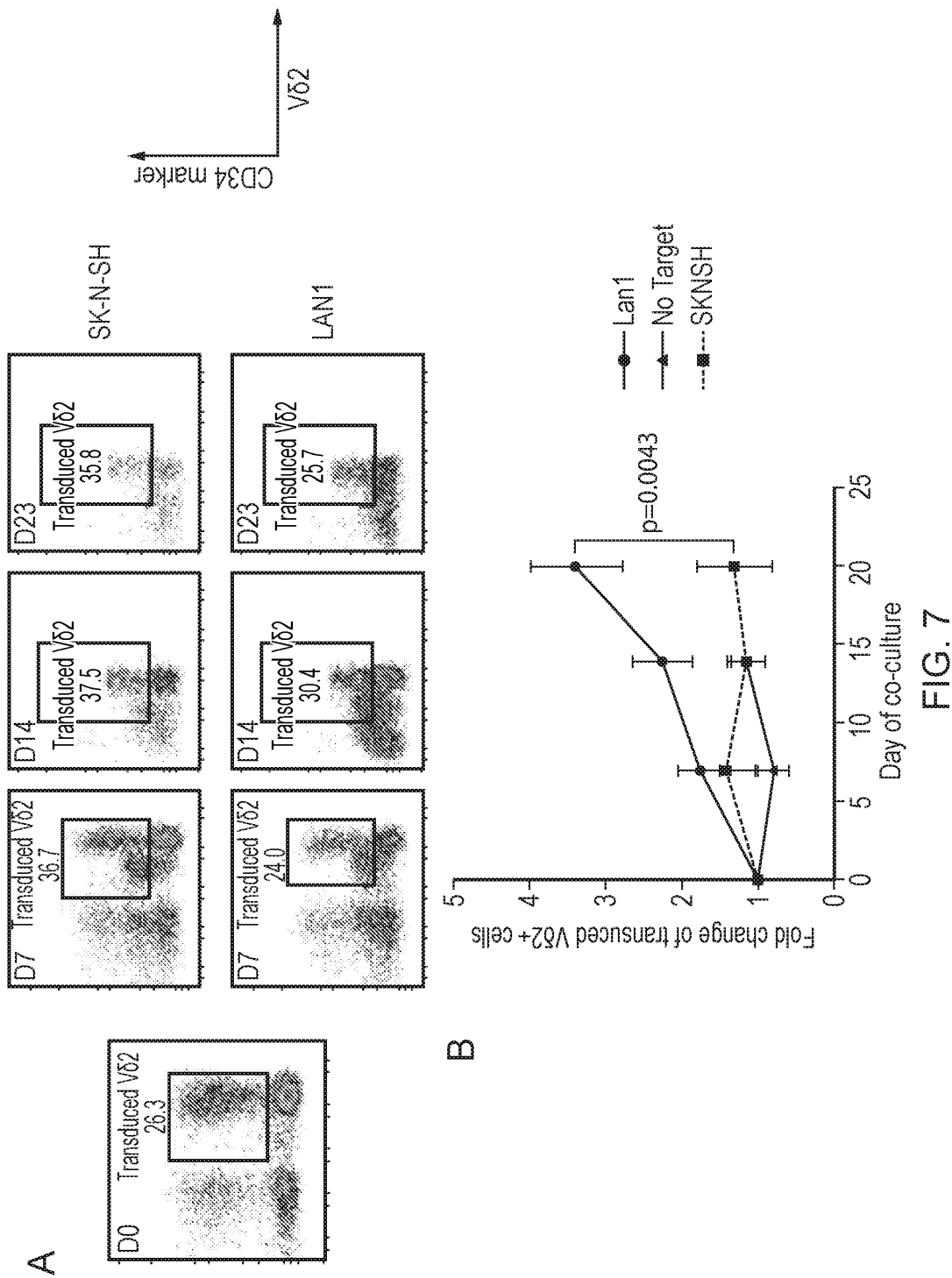


FIG. 6

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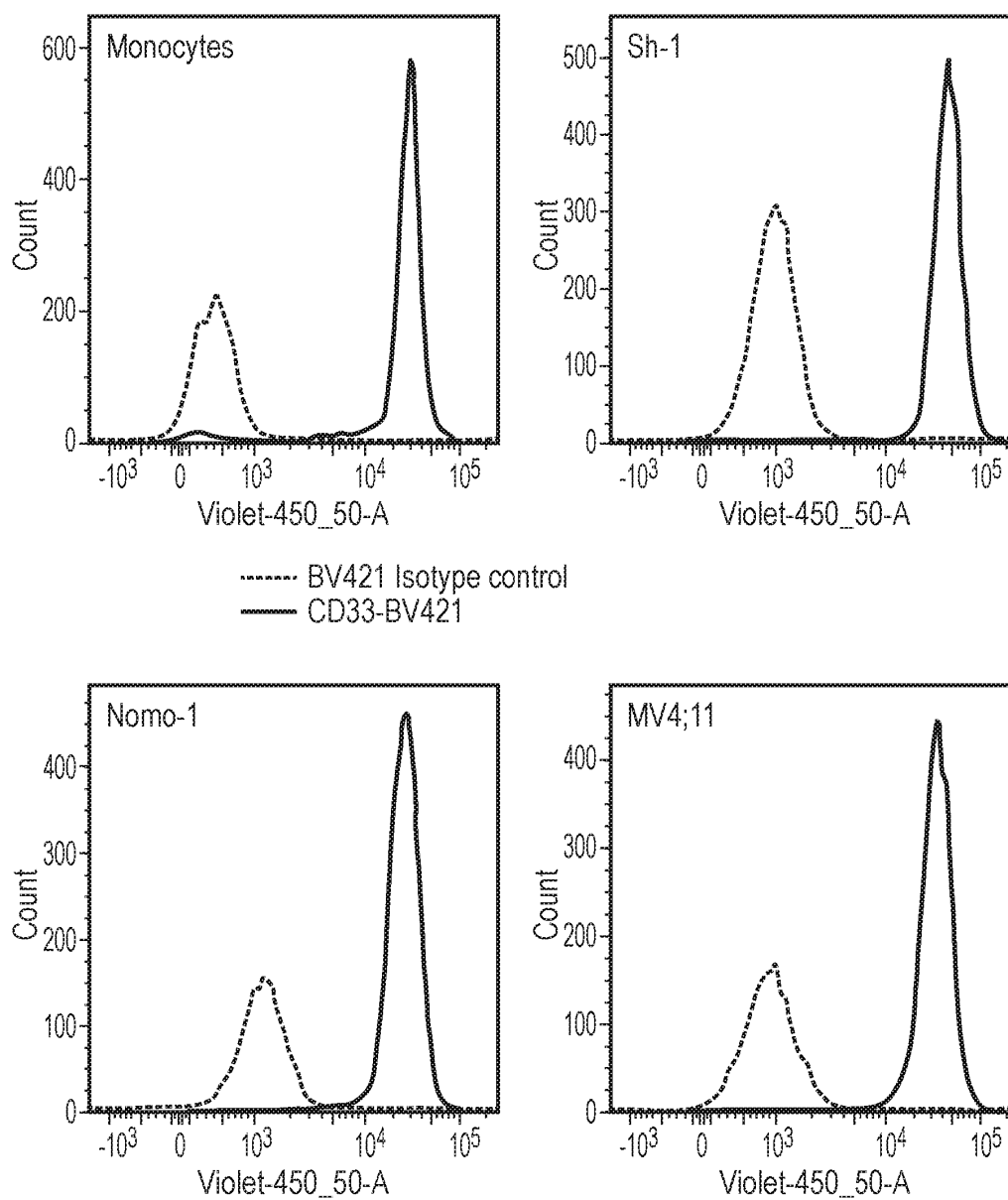


FIG. 8

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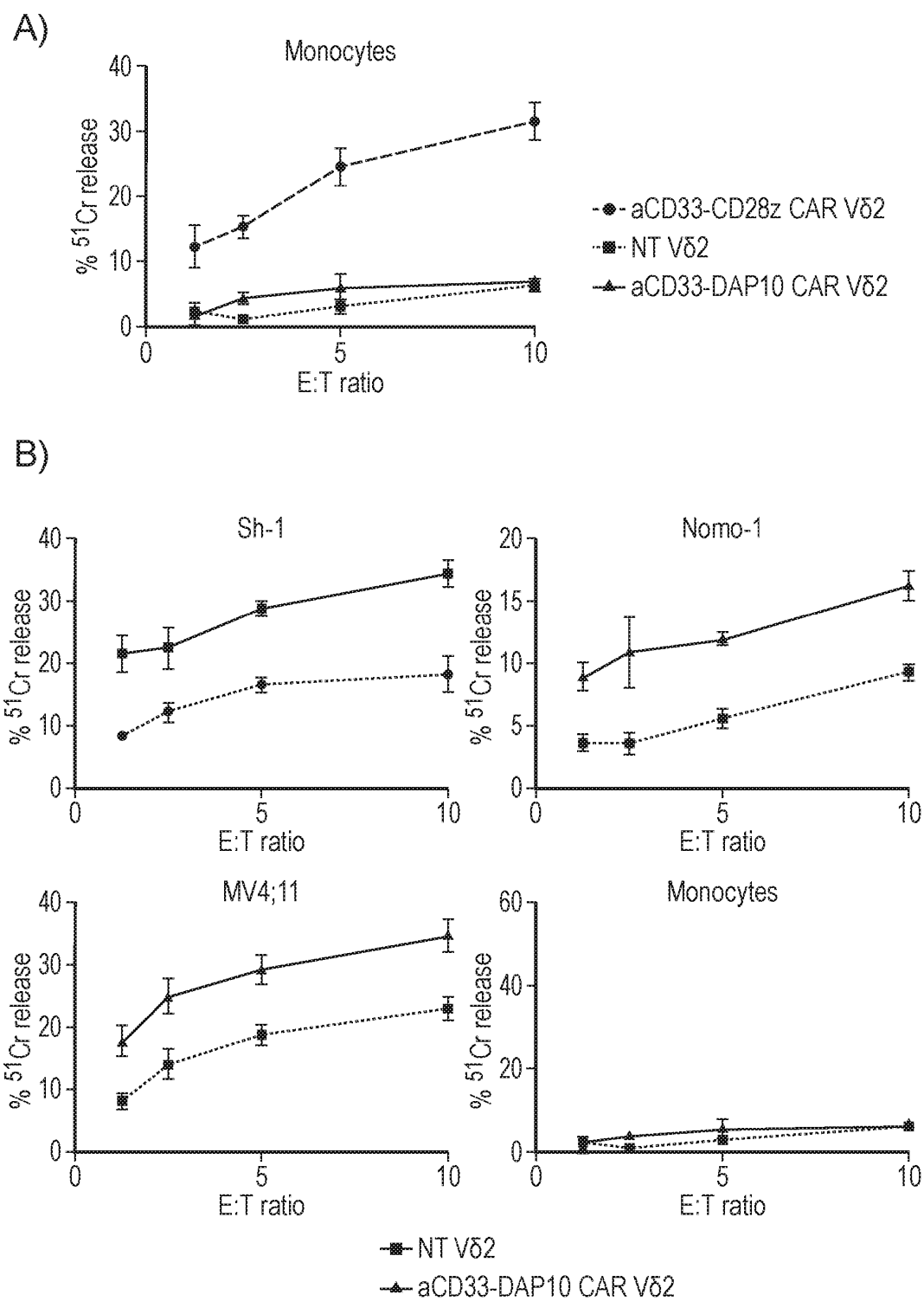


FIG. 9

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Nucleotide sequence of the aGD2-Fc-DAP10 CAR (SEQ ID NO: 5)

ATGGAGACCGACACCCTGCTGCTGTGGGTGCTGCTGCTGTGGGTGCCA
GGCAGCACCGGCCAGGTGCAGCTGCAGGAGTCTGGCCCAGGCCTGGT
GAAGCCCAGCCAGACCCTGAGCATCACCTGCACCGTGAGCGGCTTCAG
CCTGGCCAGCTACAACATCCACTGGGTGCGGCAGCCCCCAGGCAAGGG
CCTGGAGTGGCTGGGCGTGATCTGGGCTGGCGGCAGCACCAACTACAA
CAGCGCCCTGATGAGCCGGCTGACCATCAGCAAGGACAACAGCAAGAA
CCAGGTGTTCTGAAGATGAGCAGCCTGACAGCCGCCGACACCGCCGT
GTACTACTGCGCCAAGCGGAGCGACGACTACAGCTGGTTCCGCTACTG
GGGCCAGGGCACCCCTGGTGACCGTGAGCTCTGGCGGAGGCGGCTCTG
GCGGAGGCGGCTCTGGCGGAGGCGGCAGCGAGAACCAGATGACCCAG
AGCCCCAGCAGCTTGAGCGCCAGCGTGGGCGACCGGGTGACCATGACC
TGCAGAGCCAGCAGCAGCGTGAGCAGCAGCTACCTGCACTGGTACCAG
CAGAAGAGCGGCAAGGCCCCAAAGGTGTGGATCTACAGCACCAGCAAC
CTGGCCAGCGGCGTGCCCAGCCGGTTCAGCGGCAGCGGCAGCGGCAC
CGACTACACCCTGACCATCAGCAGCCTGCAGCCCCAGGACTTCGCCAC
CTACTACTGCCAGCAGTACAGCGGCTACCCCATCACCTTCGGCCAGGGC
ACCAAGGTGGAGATCAAGCGGTCCGATCCCGCCGAGCCCCAAATCTCCT
GACAAAACCTCACACATGCCACCGTGCCAGCACCTCCCGTGGCCGGC
CCGTGAGTCTTCTCTTCCCCCAAAACCAAGGACACCCTCATGATCG
CCCGGACCCCTGAGGTCACATGCGTGGTGGTGGACGTGAGCCACGAAG
ACCCTGAGGTCAAGTTCAACTGGTACGTGGACGGCGTGAGGTGCATAA
TGCCAAGACAAAGCCGCGGGAGGAGCAGTACAACAGCACGTACCGTGT
GGTCAGCGTCCTCACCGTCCTGCACCAGGACTGGCTGAATGGCAAGGA
GTACAAGTGAAGGTCTCCAACAAAGCCCTCCCAGCCCCCATCGAGAAA
ACCATCTCCAAAGCCAAAGGGCAGCCCCGAGAACCACAGGTGTACACG
CTGCCCCCATCCCGGGATGAGCTGACCAAGAACCAGGTGAGCCTGACC
TGCCTGGTCAAAGGCTTCTATCCAGCGACATCGCCGTGGAGTGGGAG
AGCAATGGGCAACCGGAGAACAACTACAAGACCACGCCTCCCGTGCTG
GACTCCGACGGCTCCTTCTTCTCTACAGCAAGCTCACCGTGGACAAGA
GCAGGTGGCAGCAGGGGAACGTCTTCTCATGCTCCGTGATGCATGAGG
CCCTGCACAATCACTATACCCAGAAATCTCTGAGTCTGAGCCCAGGCAA
GAAGGACCCCAAGTTCTGGGTCCTGGTGGTGGTGGGAGGCGTGCTGGC
CTGTTACTCTCTCCTGGTGACCGTGGCCTTCATCATCTTCTGGGTGTGC
GCCAGACCACGGCGGAGCCCAGCCCAGGAGGACGGCAAGGTGTACAT
CAACATGCCCCGCCGCGGCTGA

Amino acid sequence of the aGD2-Fc-DAP10 CAR (SEQ ID NO: 2)

METDTLLWLLWPGSTGQVQLQESGPGLVKPSQTLSTCTVSGFSLAS
YNIHWVRQPPGKGLEWLGVIWAGGSTNYNSALMSRLTISKDNSKNQVFLKM
SSLTAADTAVYYCAKRSDDYSWFAYWGQGLTVTVSSGGGGSGGGSGGG
GSENQMTQSPSSLSASVGDRVMTTCRASSSVSSSYLHWYQKSGKAPKV
WIYSTSNLASGVPSRFSGSGSGTDYTLTISSLQPEDFATYYCQQYSGYPITF
GQGTKVEIKRSDPAEPKSPDKTHTCPPCPAPPVAGPSVFLFPPKPKDTLMIA
RTPEVTCVVVDVSHEDPEVKFNWYVDGVEVHNAKTKPREEQYNSTYRVVS
VLTVLHQDWLNGKEYKCKVSNKALPAPIEKTISKAKGQPREPQVYTLPPSRD

FIG. 10

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ELTKNQVSLTCLVKGFYPSDIAVEWESNGQPENNYKTTPPVLDSDGSFFLY
SKLTVDKSRWQQGNVFSCSVMHEALHNHYTQKSLSLSPGKKDPKFWVLW
VGGVLACYSLLVTVAFIIFWMCARPRRSPAQEDGKVYINMPGRG

Key

anti-GD2 scFV
CH2CH3 spacer with PPVA mutation to prevent binding to Fc γ receptors
CD28 transmembrane domain
DAP10 endodomain

FIG. 10 (Continued)

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Nucleotide sequence of the aCD33-Fc-DAP10 CAR (SEQ ID NO: 4)

ATGGCCGTCGCCCCTCAGGTCCTGGGGTTGTTGCTACTGTGGCTTACAG
 ATGCCAGATGTGACATCCAGATGACACAGTCTCCATCTTCCCTGTCTGCA
 TCTGTGCGGAGATCGCGTCACCATCACCTGTGCGAGCAAGTGAGGACATTT
 ATTTTAATTTAGTGTGGTATCAGCAGAAACCAGGAAAGGCCCTAAGCTC
 CTGATCTATGATACAAATCGCTTGGCAGATGGGGTCCCATCACGGTTCA
 GTGGCTCTGGATCTGGCACACAGTATACTCTAACCATAAGTAGCCTGCA
 ACCCGAAGATTTGCGAACCTATTATTGTCAACACTATAAGAATTATCCGCT
 CACGTTTCGGTCAGGGGACCAAGCTGGAAATCAAAGATCTGGTGGCGG
 AGGGTCAGGAGGCGGAGGCAGCGGAGGCGGTGGCTCGGGAGGCGGA
 GGCTCGAGATCTGAGGTGCAGTTGGTGGAGTCTGGGGGCGGCTTGGTG
 CAGCCTGGAGGGTCCCTGAGGCTCTCCTGTGCAGCCTCAGGATTAATC
 TCAGTAATTATGGCATGCACTGGATCAGGCAGGCTCCAGGGAAGGGTCT
 GGAGTGGGTCTCGTCTATTAGTCTTAATGGTGGTAGCACTTACTATCGAG
 ACTCCGTGAAGGGCCGATTCACTATCTCCAGGGACAATGCAAAAAGCAC
 CCTCTACCTTCAAATGAATAGTCTGAGGGCCGAGGACACGGCCGTCTAT
 TACTGTGCAGCACAGGACGCTTATACGGGAGGTTACTTTGATTACTGGG
 GCCAAGGAACGCTGGTCACAGTCTCGTCTATCGATCCCGCCGAGCCCA
 AATCTCCTGACAAAACCTCACACATGCCACCGTGCCAGCACCTCCCGT
 GGCCGGGCCGCTCAGTCTTCTCTTCCCCCAAAACCCAAGGACACCCTC
 ATGATCGCCCGGACCCCTGAGGTACATGCGTGGTGGTGGACGTGAGC
 CACGAAGACCCTGAGGTCAAGTTCAACTGGTACGTGGACGGCGTGGAG
 GTGCATAATGCCAAGACAAAGCCGCGGGAGGAGCAGTACAACAGCACG
 TACCGTGTGGTCAGCGTCTCACCGTCTGCACCAGGACTGGCTGAATG
 GCAAGGAGTACAAGTGCAAGGTCTCCAACAAGGCCCTCCAGCCCCCAT
 CGAGAAAACCATCTCCAAGCCAAAGGGCAGCCCCGAGAACCACAGGT
 GTACACCCTGCCCCCATCCCGGGATGAGCTGACCAAGAACCAGGTCAG
 CCTGACCTGCCTGGTCAAAGGCTTCTATCCAGCGACATCGCCGTGGAG
 TGGGAGAGCAATGGGCAACCGGAGAACAACACTACAAGACCACGCCTCCC
 GTGCTGGACTCCGACGGCTCCTTCTTCTCTACAGCAAGCTCACCGTGG
 ACAAGAGCAGGTGGCAGCAGGGGAACGTCTTCTCATGCTCCGTGATGC
 ATGAGGCCCTGCACAATCACTATAACCAGAAATCTCTGAGTCTGAGCCC
 AGGCAAGAAGGACCCCCAAGTTCTGGGTCTGGTGGTGGTGGGAGGCGT
 GCTGGCCTGTACTCTCTCCTGGTGACCGTGGCCTTCATCATCTTCTGG
 GTGTGCGCCAGACCACGGCGGAGCCAGCCAGGAGGACGGCAAGGT
 GTACATCAACATGCCCGGCCGCGGCTGA

Amino acid sequence of the aCD33-Fc-DAP10 CAR (SEQ ID NO: 1)

MAVPTQVLGLLLWLTDARCDIQMTQSPSSLSASVGDRVITCRASEDIYFN
 LVWYQQKPKGKAPKLLIYDTNRLADGVPSRFSGSGSGTQYTLTISSLQPEDFA
 TYYCQHYKNYPLTFGGGTKLEIKRSGGGGSGGGGSGGGGSGGGGSRSEV
 QLVESGGGLVQPGGSLRLSCAASGFTLSNYGMHWIRQAPGKGLEWSSIS
 LGGSTYYRDSVKGRFTISRDNASTLYLQMNSLRAEDTAVYYCAAQDAYT
 GGYFDYWGGTLVTVSSMDPAEPKSPDKHTCPPCPAPPVAGPSVFLFPP
 KPKDTLMIARTPEVTCVVDVSHEDPEVKFNWYVDGVEVHNAKTKPREEQY
 NSTYRVVSVLTVLHQDWLNGKEYKCKVSNKALPAPIEKTISKAKGQPREPQV

FIG. 11

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YTLPPSRDELTKNQVSLTCLVKGFYPSDIAVEWESNGQPENNYKTTPPVLD
SDGSFFLYSKLTVDKSRWQQGNVFCSSVMHEALHNHYTQKSLSLSPGKKD
PKFWLVVVGGVLACYSLLVTVAFIIFWMCARPRRSPAQEDGKVYINMPGR
G

Key

anti-CD33 scFv:
CH2CH3 spacer with PPVA mutation to prevent binding to Fcγ receptors
CD28 transmembrane domain
DAP10 endodomain

FIG. 11 (Continued)

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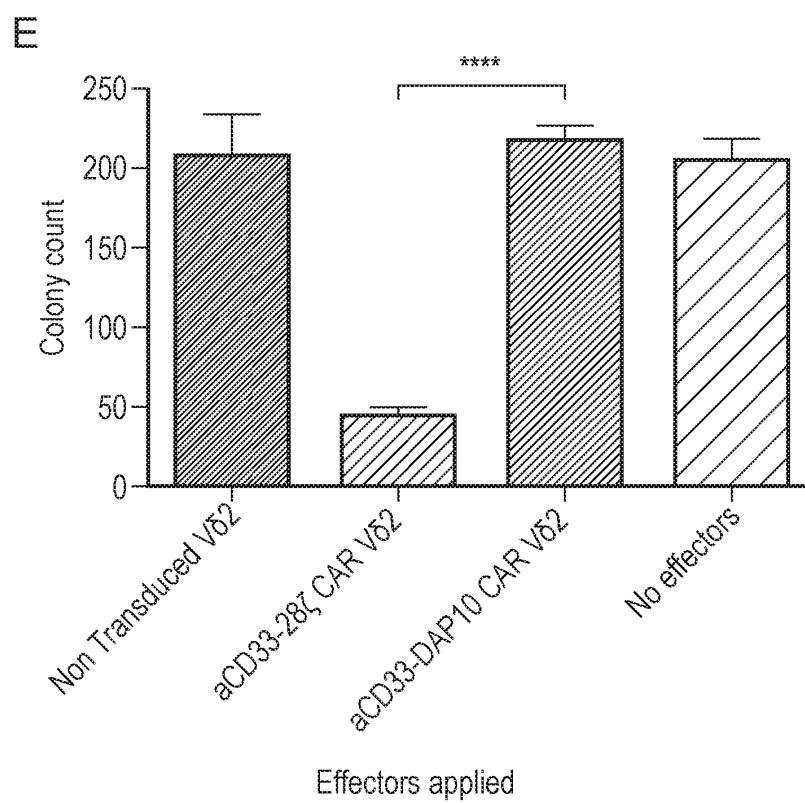


FIG. 12

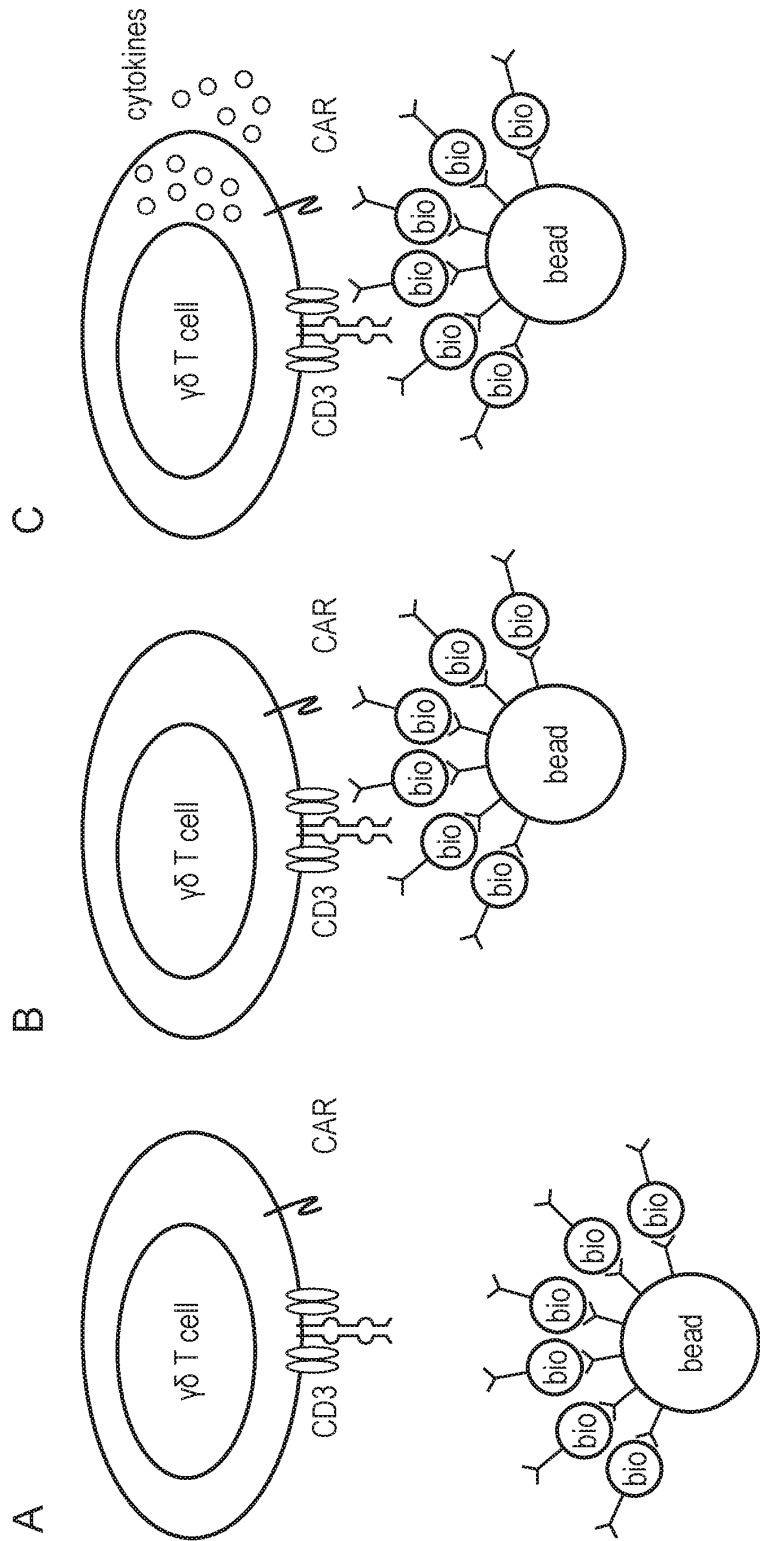


FIG. 13

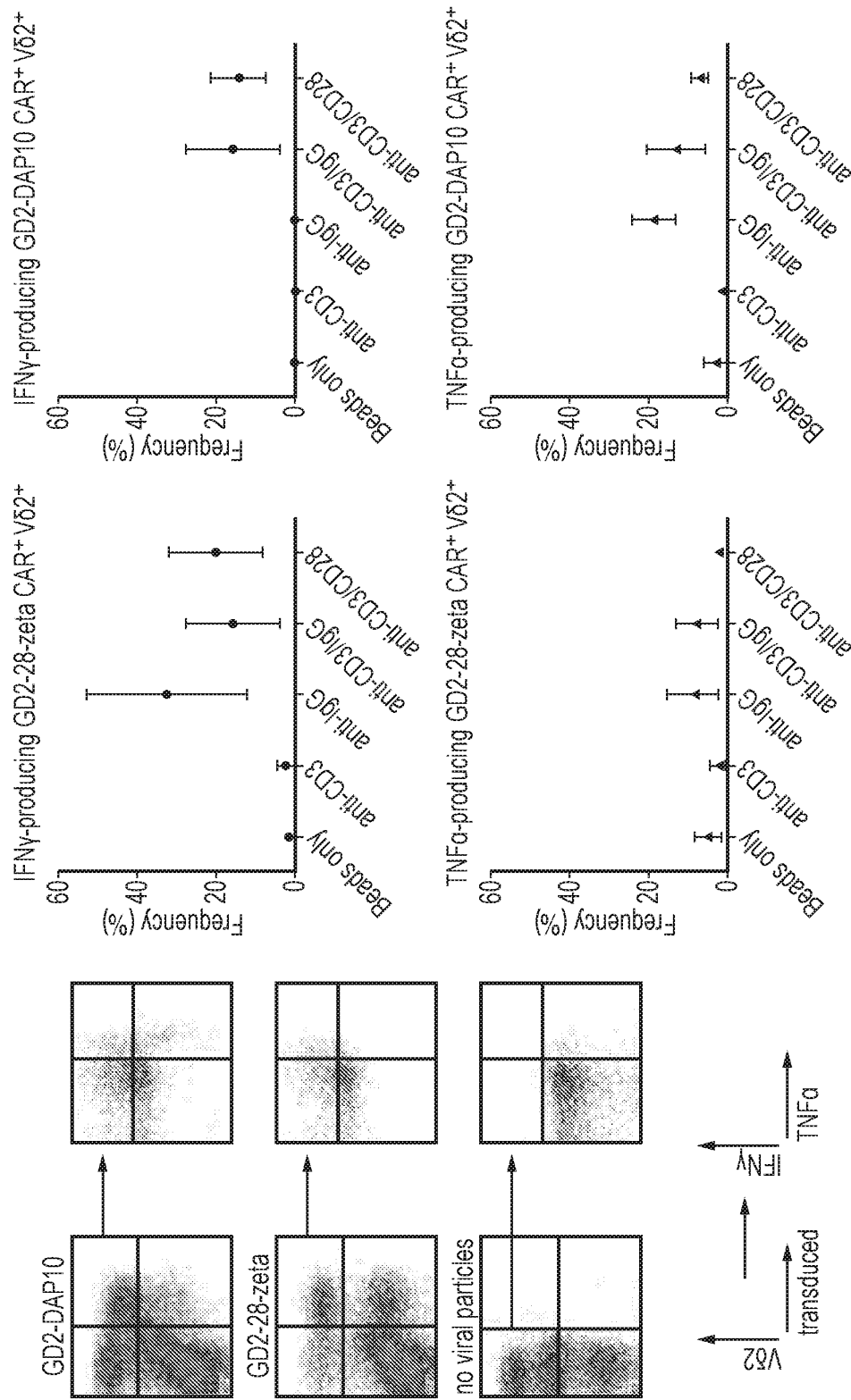


FIG. 13 (Continued)